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SOME NOTES ON LYCÆNA PSEUDARGIOLUS.

BY W. H. EDWARDS, COALBURGH, W. VA.

In September, 1873, Mr. T. L. Mead, who was then at Coalburgh, observed a ♀ *pseudargiolus* depositing eggs upon the flowers of *Actinomeris squarrosa*, and on examining the flower heads found a number of eggs. He brought home two of the females, and enclosed them in a muslin bag upon the flower heads of the same plant, near my house, the plant being not at all an uncommon one here. Several eggs were soon deposited, and in due time the larvæ were hatched and some of them were carried through to chrysalids, a change which occurred about the middle of October. The flowers of *squarrosa* becoming scarce before the caterpillars were mature, I tried the flowers of an allied plant, *A. helianthoides*, and found them to answer equally well. The eggs are laid singly on the still undeveloped flower, and the larva feeds on the petals or eats its way to the seed vessel. In no instance have I seen it feed upon the leaf of the plant. The chrysalids of this lot were found to be dead in the spring of 1874.

In September, 1874, I noticed the females of same species hovering about *squarrosa*, and confining some of them as before, obtained eggs, and three of the larvæ from these I succeeded in bringing to chrysalis. Late in the winter the chrysalids were placed in the greenhouse, and on the 13th of Feb'y, 1875, there emerged from them three true *violacea*, 1 ♂, 2 ♀. This unexpected result shows *violacea* to be the spring form of *pseudargiolus*. *Violacea* never appears here after the last of April or the first few days of May. If the weather is pleasant through April, it is extremely abundant from the first to the middle of the month. The first *violacea* which appear come in the warm days of March, so that their entire period in the imago is not far from six weeks, and after that no more are seen till the following spring. On the other hand, *pseudargiolus* appears from the 10th of May to the 1st of June; about the 1st of July there is a second brood, and one or two others during the summer.

In the light of this discovered relationship, it becomes a question as to *neglecta* and *lucia*. I am prepared to believe that *neglecta* may prove to be one of the summer broods of *pseudargiolus* in this latitude, but the point can only be determined by breeding from the egg. There are differences between the two forms sufficient to make me regard them as distinct till the contrary is proved. Moreover, Mr. Saunders found the larva of *neglecta* feeding on *leaves of cornus*, and the description of it published by him in v. 1, p. 100, CAN. ENT., does not at all agree with the larva of *pseudargiolus*. Mr. Mead has lately written me that the larvae of *neglecta* were found by him last year at Ithaca, N. Y., on flowers of *Ceanothus Americanus*—New Jersey Tea—but he does not appear to have written a description of them. We may hope that the coming season will settle the question of relationship in these cases. It may be inferred, inasmuch as *lucia* also is an early spring form (or, at least, I cannot learn that it appears at any other time than in late spring or early summer, which would correspond in New York to April and May here) that it is the spring form of the northern *neglecta*, which appears in the Catskills in June and at intervals till September.

I have a full series of drawings by Miss Peart, of the egg, several stages of the larva, and the chrysalis of *pseudargiolus*, and when I have obtained a like series of *neglecta*, I will devote a plate to them in the Butterflies of N. A.

As the plants on which the larvae were found here bloom only in the fall, the larvae of *violacea* and of the earlier broods of *pseudargiolus*, if they feed only upon flowers, must live upon a variety of plants.

NOTE.—After the foregoing lines were in type, Mr. Scudder wrote me that in Mass. "*neglecta*, *lucia* and *violacea* all appear in May," the inference being that one could not be the parent of another. I cannot but think that there is a mistake here, although Mr. Scudder's accuracy is well known. At Newburgh, N. Y., I always counted on taking *lucia* on the catkins of certain species of willow, and this was in May. But I have no mention in my diary of ever seeing *neglecta* before June. I wish that collectors interested in the subject would observe the times of first appearance of each of these species this season, and favor me with their observations through the ENTOMOLOGIST.

[Our own experience is rather adverse to the theory advanced by our esteemed friend Edwards, as to the identity of *neglecta* and *lucia*. We have never taken a single specimen of *lucia* in this neighborhood (Lon-

don, Ont.,) and do not know of any one who has, and we question if any district of our province has been more thoroughly worked up. *Neglecta*, although not very common, is taken every season here, the first brood usually occurring during the latter part of May and the early days of June, and the second brood in July and later. On looking over some old memoranda, we find the following dates of captures of *neglecta:* 1861, one specimen taken May 22nd, one on the 25th, one on the 30th, and one on the 4th of June. In 1862, two specimens on the 14th and one on the 15th of May. In 1863, two on the 19th and one on the 22nd of May, and in 1865, one on the 30th of May, one on the 4th of June, and a specimen much beaten on the 25th of the same month. On the 2nd of July a fresh looking specimen was taken, and on the 5th another, both probably belonging to the second brood. The larvae of *neglecta*, described in the paper referred to by Mr. Edwards, were taken nearly full grown on the 12th of July, feeding on a species of *cornus* (they were subsequently fed on willow); five of them produced the imago shortly after, and they were all well defined specimens of *neglecta*.—ED. C. E.]

ON THREE NEW SPECIES OF NOCTUIDÆ.

BY AUG. R. GROTE, A. M.,

Director of the Museum, Buffalo Society Natural Sciences.

Agrotis rufipennis. N. sp.

♂. Eyes naked, all the tibiae spinose, antennae brush-like. Thorax, head and appendages brownish red. Anterior wings brownish red, silky. Median lines faint, blackish, tolerably approximate. T. a. line nearly straight, t. p. line evenly rounded, tending to be obsolete on the veins; costal dots mark the inception of the lines. Median shade very faint. Stigmata obsolete; there is merely an indication of the reniform. Subterminal line pale, narrow, continuous; terminal space darker than the wing, the fringes lighter. Hind wings pure white, immaculate. Abdomen pale. Beneath primaries powdered with reddish, secondaries white with powdery reddish scales along costal region. No perceivable lines or dots in the type. *Expanse* 38 m. m. *Hab.* New York (Lintner). The insect looks something like a *Ceramica*.

Orthosia helva. N. sp.

♂, ♀. A large and common species from the Eastern slope, of which I have seen many specimens. It is possibly not described here for the first time, but I can find no name for it. The eyes are naked, with lashes; tibiae unarmed; abdomen conical. The size is large, Hadena-like. Fore wings dark yellow, with the lines reddish brown, obsoletely and widely geminate, distinct; t. a. waved, inner line incomplete. Orbicular concolorous, brown ringed, sub-ovate; reniform large, illy defined with a prominent inferior blackish stain; median shade well marked, nervulous. T. p. line with the inner line fine, dentate, the outer line continued as a series of black nervular points. Subterminal line broken, with a darker costal preceding shade. Fringes darker than the wing, cut with pale. Hind wings fuscous, with yellow fringes. Abdomen mostly dark yellow, with plumose side and anal tufts in the ♂, and with a feeble basal tuft. *Expanse* 40 m. m.

I refer this species to *Orthosia* rather than *Hadena*, from the lashed eyes. It is larger than, but resembles *O. ferrugineoides.*

Glæa venustula. N. sp.

A species distinguishable by the nervules, vein 1, and the median vein being finely and continuously marked with pale. The color is a light drab brown, costal and internal edges of the primaries and the edges of the collar pale. Transverse lines pale; t. a. line rounded with a dark succeeding shade. Stigmata concolorous, distinctly pale ringed; orbicular oblique, irregular, narrowed; reniform somewhat pyriform, narrowing inferiorly; s. t. line of the usual shape, pale, with preceding dark shade, distinct. Terminal line black, incomplete; fringes concolorous. Hind wings blackish fuscous, with ruddy fringes. Beneath pale reddish, fuscous on the disc of primaries; hind wings feebly irrorate, with a line and discal spot. *Expanse* 42 m. m. *Hab.* Maryland (Lintner).

The genera *Orthosia* and *Glæa (=Cerastis)* are regarded as nearly allied by Lederer and Herrich-Schaeffer. My *Glæa apiata* is cited as "*Orthosia? apiata*" by Mr. Morrison (this vol., p. 16); the exclamation mark is superfluous, as I had already correctly referred the moth, and the latest work of an author, replacing a former one, is the one to be criticized. Mr. Morrison says of the species of *Glæa*, that the claviform spot "seems to be nearly always (?) present in this genus, although not mentioned in Mr. Grote's descriptions." As constituted by myself (Bul.

B. S. N. S., 2, 125), the genus in America is composed of *viatica* Grote, *decliva* Grote, *inulta* Grote, *apiata* Grote, and *olivata* Harvey. In none of the specimens of these species before me is there the faintest trace of the claviform. I do not know Mr. Morrison's new species, *sericea* and *pastillicans*. There is no trace of the spot in the more recently described *tremula* Harvey, from Texas. The tendency, however, throughout the Noctuidæ is to reproduce the normal ornamentation, and it is possible that certain specimens may show traces of a spot usually absent in the species to which they belong. Such cases authorize no stricture upon original descriptions of species based on specimens which do not exhibit the character.

ON SOME OF OUR COMMON INSECTS.

THE BEAUTIFUL DEIOPEIA—Deiopeia bella.

BY THE EDITOR.

This lovely moth, represented in fig. 11 (after Riley) may well claim a place among the most elegant and beautiful of the Lepidoptera. Although rare in some parts of our province, they are quite common in other localities. We have found them common in the neighborhood of Port Stanley, on the shores of Lake Erie, and they are usually common and sometimes abundant about Grimsby, Ont. We have also seen them in other collections from various parts of Canada.

Fig. 11.

This moth measures when its wings are expanded about one and a half inches. Its fore wings vary in color from lemon yellow to orange, and are crossed by six white bands, each containing a row of black dots. The hind wings vary in color from pink to scarlet red, with an irregular border of black behind. The fringes of the wings are white.

The under surface of both pairs of wings is of a deep red color, with the front edge of the fore wings yellowish; the white bands on the upper

surface of the fore wings are not reproduced, but the black dots are more prominent, and being more or less confluent, appear as broken bands. The hind wings are marked nearly as above.

The head is white, spotted with black ; the shoulder covers white, with some yellow at the base, and two black dots on each ; the thorax and abdomen whitish, the former with six black dots, the latter banded with black beneath.

LIST OF DIURNAL LEPIDOPTERA OF THE ISLAND OF MONTREAL, P. Q.

BY F. B. CAULFIELD, MONTREAL, P. Q.

PAPILIONIDÆ.

1. Papilio asterias Drury.

Not common in the vicinity of the city ; more abundant in the open country. May to end of August.

2. Papilio turnus Linn.

Generally common ; end of May to middle of July.

PIERIDÆ.

3. Pieris oleracea Harris.

Not common ; May and June. I have not seen an August brood.

4. Pieris rapæ Linn.

Very common, although not so extremely abundant as a few years ago, owing to the attacks of *Pteromalus puparum*. May to end of September. Var. novanglia Scudd., not common, but appears throughout the season.

5. Colias eurytheme Boisd.

Very rare ; a male in fine condition taken last season (1874) by Mr. C. W. Pearson.

6. Colias philodice Godart.

Generally abundant ; last season very scarce ; June to October ; white females very rare ; August.

DANAIDÆ.

7. Danais archippus Cram.

Generally common ; some years very scarce ; May to end of Sept.

NYMPHALIDÆ.

8. Argynnis cybele Fabr.

Common ; end of June to middle of August.

9. Argynnis aphrodite Fabr.

Not so common as last species ; end of June to middle of August.

10. Argynnis atlantis Edwards.

Very rare ; I took one example in 1872.

11. Argynnis myrina Cram.

Very common in damp meadows ; May, June and August.

12. Melitea phaeton Drury.

Rare ; June.

13. Phyciodes Harrisii Scud.

Very rare ; taken by Mr. P. Knetzing.

14. Phyciodes nycteis Doubld.

Rare ; July.

15. Phyciodes tharos Boisd. & Lec.

Very common ; June to middle of August.

16. Grapta interrogationis Fabr.

Rare ; May (hybernated) ; July to October.

17. Grapta comma Harris.

Common ; May (hybernated) end of June to October ; var. dryas Edwards not so common.

18. Grapta faunus Edwards.

Generally scarce ; last season (1874) very abundant. May (hybernated) July to October.

19. Grapta progne Cram.

Common ; May (hybernated) July to October.

20. Vanessa antiopa Linn.

Very common; end of April and May (hybernated), July to October Var. Lintnerii, bred by Mr. Pearson last season.

21. Vanessa milberti Godart.

Not common, being greatly checked by parasites in this locality. I collected over thirty larvæ last season (1874), but only got four butterflies, the remainder being full of small ichneumons. May (hybernated) August and September.

22. Vanessa J-Album Boisd. & Lec.

Not common; end of April and May (hybernated) July to October.

23. Pyrameis huntera Drury.

Generally scarce; August and September. I have not seen hybernated specimens.

24. Pyrameis cardui Linn.

Some years scarce, others common; very abundant last season (1874.) May and June (hybernated) August and September.

25. Pyrameis atalanta Linn.

Not common; May (hybernated) end of July to October.

26. Limenitis arthemis Drury.

Not abundant; July and beginning of August.

27. Limenitis disippus Godart.

Common; June to end of August.

SATYRIDAE.

28. Euptychia eurytus Fabr.

Common in open woods; June.

29. Satyrus nephele Kirby.

Not common; open fields; July and August.

30. Lethe portlandia Fabr.

Not common; July.

31. Pararge Boisduvallii Harris.

Abundant in open grassy swamps; end of June to middle of August.

LYCAENIDAE.

32. Thecla calanus Hübn.

Generally rare ; abundant last season (1874) on blossoms of Asclepias and Sumac ; July and August.

33. Thecla mopsus Hübn.

Rare ; July and August.

34. Thecla niphon Hübn.

Very rare ; taken by Mr. P. Knetzing.

35. Chrysophanus Americana Harris.

Generally common ; May, June, August and September.

36. Chrysophanus hyllus Cram.

Thoe Boisd. ; very rare. I took three specimens at Lachine in Aug., 1872, and have not met with it since.

37. Lycaena comyntas Godart.

Rare ; June, July and August.

38. Lycaena lucia Kirby.

Very common ; May and June.

HESPERIDAE.

39. Epargyreus tityrus Fabr.

Common ; June and July.

40. Thorybes pylades Scudder.

Bathyllus Harris ; common ; end of May, June and July.

41. Nisoniades brizo Boisd.

Rare ; June.

42. Atrytone hobomok Harris.

Very common ; June. *Pocahontas* ♀ var. Scudder not common.

43. Anthomaster Leonardus Harris.

Very rare ; one specimen taken in 1872.

44. Polites peckius Kirby.

Wamsutta Harris ; not common ; July.

45. Hedone orono Scudder.

Not common; July.

46. Limochores mystic Scudder.

Not common; July.

47. Limochores taumas Fabr.

Ahaton Harris; Very common; end of June and July.

These are all the species that I have seen from this locality *Pieris protodice* was taken at Lachine some years ago by Dr. Barnston. *Argynnis bellona* was taken last season (1874) by Mr. R. Jack, on the south shore of the St. Lawrence, opposite Lachine, and probably will yet be found on the Island of Montreal, and I think additions will be made to the Lycænidæ and Hesperidæ when these groups have been properly worked up.

I have, with two or three exceptions, followed Mr. W. H. Edwards's synopsis in this list, both in classification and nomenclature.

I hope to soon give lists of the remaining families, and would here gratefully acknowledge the assistance given me by those friends who kindly allowed me to study and refer to their material, amongst whom I would especially mention Messrs. Wm. Couper, P. Knetzing, C. W. and G. B. Pearson.

DESCRIPTION OF A NEW NORTH AMERICAN SPECIES OF MAMESTRA, AND OF A GENUS ALLIED TO HOMOHADENA.

BY H. K. MORRISON, CAMBRIDGE, MASS.

Mamestra dodgei. Nov. sp.

Expanse 34 m. m. Length of body 14 m. m. Eyes hairy; antennae of the male simple; villosity of the palpi coarse; thorax provided with the usual fore and hind tufts; abdomen short, stout and untufted; ground color of the anterior wings gray, without ochreous or brown admixture, as in *M. lorea* Guen.; the ordinary spots are tolerably distinct, concolorous, black encircled, the reniform filled below with black, the claviform small; the median lines are simple, black and conspicuous, the interior line perpendicular, forming a triangular projection above the orbicular spot,

which it touches; below it is lobate; the exterior line is even and non-denticulate; it is incepted at about the middle of the costa, strongly produced around the reniform spot, and below it extends obliquely, reaching the inner margin very close to the interior line; the median shade is indistinctly seen below the reniform spot; the subterminal line is diffuse and undulate; a black line at the base of the dark fringe.

Posterior wings blackish, with a light fringe; traces of the discal dots and median lines.

Beneath the wings are yellowish gray, with a very distinct undulate common median line; discal dots small; the base and median portions of the anterior wings blackish.

Hab. Nebraska (G. M. Dodge.)

This species is closely allied to our common *M. lorea*, which also occurs in Nebraska; the differences will be readily seen from the description.

I dedicate this insect to my friend Mr. G. M. Dodge, already well known by his interesting contributions to this magazine.

Copihadena. Nov. genus.

Under this name I separate from allied genera a little Texan species which has just been described by Dr. Harvey, of Buffalo, as *Homohadena atricollaris*. The species cannot be referred to *Homohadena* on account of the slender claw at the extremity of the anterior tibia, and which seems to have been overlooked at the time of description. This new genus is quite remote from the few other genera of Noctuidæ which possess the above important structure, as *Dicopis*, *Copipanolis* and *Adita*; it is perhaps nearest to *Oncocnemis*, but the eyes have not distinct hairy lashes and the ornamentation is entirely different. It differs from *Homohadena*, besides the tibial claw, by the slender thorax and elongate wings; however, the ornamentation is very similar in the two genera. *Homohadena induta* Harvey, described at the same time as *H. atricollaris*, is identical with *Homohadena retroversa* Morr., from Missouri. Many of the species which are found in Missouri, Kansas and Nebraska also extend down into Texas.

TINEINA FROM TEXAS.

BY V. T. CHAMBERS, COVINGTON, KENTUCKY.

(Continued from page 75.)

ŒCOPHORA.

Œ. basqueella.

Palpi dark brown, with a yellowish white annulus around the middle and tip of the second and third joints. Head yellowish white; antennæ dark brown, with the extreme tip of the basal joint white. Thorax above and base of the forewings brown; dorsal margin of the forewings, from the base to the ciliae, pale orange yellow, with a broad fascia of the same hue at about the basal fourth, passing across the wing and gradually narrowing to the costa. Behind this fascia to the apex the wing is brown, containing an irregular yellowish spot at about the middle of the costal margin, and a white one immediately before the ciliae. The brown color has a rich maroon tint, and not a dead lustreless hue. Legs and tarsi brown, annulate with pale yellowish. Venter brown, with two yellowish bands before the apex. *Al. ex.* ½ inch. Basque Co.

GRACILARIA.

G. belfrageella. N. sp.

Antennae purple brown; face and palpi white, the second joint of the maxillary palpi being tipped beneath its apex with purple brown; thorax and wings purple brown. The costal triangle is pale lemon yellow (nearly white), reaches the fold, where it is truncated, and it extends as a wide band along the costal margin to the ciliae. Sides of the thorax purple brown; anterior and middle legs purple brown, with white tarsi; hind legs whitish, except the apical halves of the femora, which are purple brown. *Al. ex.* $\frac{7}{16}$ inch.

THEISOA.

It is possible that this genus ought not to have been separated from *Elachista.* Its more elongate palpi, the horizontal position in repose of the wings, and the dissimilarity of ornamentation of the wing from that of other species of *Elachista*, induced me to separate *T. bifasciella* from

that genus, and make it the type of this. *Bifasciella* is not a very appropriate name for that species, since it is seldom that the second fascia can properly be called a fascia at all; usually it is only indicated by a slightly paler shade of the yellowish brown color of that part of the wing between the small white costal and dorsal streaks at the beginning of the ciliae, and sometimes these streaks are not at all distinct. The specimens from Texas do not differ from those taken in Kentucky. The species described below does not differ structurally from *T. bifasciella*, but its ornamentation is very different both from it and from all species of *Elachista* known to me, whilst it is almost exactly that of a species described by me in the *Cincinnatti Quar. Jour. Science, v. 2*, under the specific name of *fasciella*, as the type of a new genus, *Æsyle*. *A. fasciella*, however, is structurally quite distinct from *Theisoa*, and approaches much more closely to *Lithocolletis*, from which I separate it with hesitation.

T. multifasciella. N. sp.

Head brownish yellow, becoming paler on the face around the mouth. Palpi externally brown, internal surface white. Antennae alternately brown and silvery white. Upper surface of the thorax and base of the forewings brownish red. The forewings are banded with alternate wide fasciae of white and brownish red, the brownish red fasciæ being margined rather narrowly behind with dark brown. Including the brownish red on the base of the wings, there are four fasciæ of that hue and three white ones and the tip of the wing is also white. Hind wings and ciliae of the forewings pale grayish fuscous. Abdomen brown, the tip and posterior margin of each segment being white. Under surface of the forewings dull brown, that of the hind wings shining grayish fuscous. Legs and tarsi with alternate annulations of white and shining dark brown. *Al. ex.* $\frac{5}{16}$ inch.

ELACHISTA.

E. inornatella. N. sp.

Dark brown, immaculate, in some lights showing a faint purplish gloss. *Al. ex.* $\frac{1}{4}$ inch.

ITHOME, *gen. nov.*

This genus is allied to *Elachista*, *Chrysoclista*, *Laverna*, *Chauliodus* and *Perimede*.

The palpi are long, slender and (in the dead insect) drooping and slightly divergent, resembling those of *Chrysoclista*, but more slender and the joints more nearly of the same size ; the third joint is longer than the second. Tongue moderate, scaled. Face full, convex, nearly as wide as long ; head and face smooth, with scales appressed ; eyes globose, of medium size ; antennae about two-thirds as long as the wings, with the basal joint a little elongate.

Fore wings lanceolate ; the costal vein reaches the margin before the middle ; the cell is acutely closed ; the subcostal vein sends three branches to the costal margin, the first being emitted just behind the middle, and the third at the end of the cell, and the second nearer to the third than to the first ; the median vein divides into three branches, the first of which is opposite to the second subcostal, and the third is at the end of the cell, and between it and the third subcostal branch is a discal ? branch which is furcate before the apex, with a branch to each margin near the apex ; the submedian vein is furcate at the base, and reaches the dorsal margin opposite to the first branch of the median.

Hind wings almost linear ; costal vein very short ; subcostal straight to the apex ; cell unclosed ; the median divides into three equidistant branches, the second of which attains the dorsal margin about the middle, and there is an independent ? discal branch, which arises at the median and goes to the dorsal margin.

I. unimaculella. N. sp.

Palpi white on the upper surface, dark brown beneath, and with about three microscopic whitish specks on the under side of the third joint ; tongue and face silvery white ; antennae, vertex, thorax and forewings dark purplish brown ; there is a small yellowish costal spot immediately before the ciliae, but the forewings are otherwise immaculate. Anterior and middle legs and tarsi brown, the tarsi annulate with whitish ; hind legs and under surface of the body yellowish silvery. *Al. ex.* ¼ inch.

At a hasty glance this species and *Eriphia concolorella* and *Elachista concolorella* may be mistaken for each other. But the more elongate palpi, narrower wings, finer scales and costal spot, as well as the white upper surface of the palpi, sufficiently distinguish this species. The other two species differ very slightly in shade of color, but may be distinguished by the structure of the palpi, those of *Eriphia concolorella* being more elongate than those of the *Elachista*. All three are obscure, plain species.

COLEOPHORA.

C. albacostella. N. sp.

Second joint of the palpi with a minute projecting tuft beneath its apex. Basal joint of the antennæ a little swollen. The head is tinged with ochreous, as also are the wings, though more faintly so ; the wings are somewhat dusted with fuscous, especially towards the apex. Extreme costa from the base to the ciliae white. *Al. ex.* a little over ½ inch.

C. trilinella. N. sp.

Antennae and palpi simple ; upper surface of the thorax white, the lower surface and legs tinged with yellow. Fore wings white, with a pale golden or ochreous line beneath the fold, close to and parallel with it ; a darker, but not more distinct line, parallel to the costa and close to it ; a more distinct ochreous line extends from the base to the apex, sending off in the apical part of the wing two branches to the costal ciliae. *Al. ex.* ½ inch.

OBITUARY.

[FROM THE AMERICAN JOURNAL OF NUMISMATICS, APRIL, 1875, VOL. IX, NO. 4, PAGE 95.]

" Mr. Philip L. Sprague, a resident member of the Boston Numismatic Society, died at Montpelier, Vt., his native place, on the sixth day of August last, in the forty-fifth year of his age. We have received from an intimate friend of his the following notice of our late member :—

" ' About 1862 he commenced the study of Entomology with me in the State Cabinet of Natural History, displaying a marked taste for the Lepidoptera, and during the intervals of his business made considerable progress in biological investigations, as well as in the technology of the science. Circumstances soon induced him to direct his attention chiefly to the Coleoptera, and here his assiduity in making collections, his accuracy in the determination of species, and his studies in the microscopic anatomy of this order, gave his opinions weight among naturalists. His keen appreciation of the labors of his predecessors, and his love of neatness and method evinced themselves in all he did.

" 'At the time of his death he had been for some months a valuable assistant and member of the Boston Society of Natural History, where many of his works remain to speak for themselves. Among his associates there he was distinguished for his geniality of manner and never-failing readiness to assist younger students. At the time of his death his fame and foreign correspondence were somewhat extended, and he was actively engaged in the preparation of materials for an illustrative cabinet of the Natural History of his native State. He had published from time to time in the CANADIAN ENTOMOLOGIST and the Proceedings of the Natural History Society carefully elaborated results of his work, and contributed to various other periodicals devoted to his favorite branch of investigation. His fine private cabinet of insects, principally of the Coleopterous Order, in accordance with his expressed determination, form a part of the Museum of the Society to which he was attached, and is in itself no mean monument to his memory.' F. G. S.

" Mr. Sprague was elected a member of this Society May 5th, 1860."

CORRESPONDENCE.

RHAGIUM LINEATUM.

DEAR SIR,—

In reply to Mr. W. V. Andrews' enquiry, I would say that the above insect breeds under the bark of pine stumps. I have good reasons for thinking that it completes its transformations in September and hybernates until tbe following spring. I had long expected such to be the case from finding it in February and March, both living and dead, in the cavity formed by the larva in which to pupate. But in September, 1874, I found numerous specimens of the beetle that had just appeared, many of them not mature in color, and with them several specimens of the pupæ.

H. L. MOODY, Malden, Mass.

DEAR SIR,—

Mr. Andrews inquires, page 80, about *Rhagium lineatum* Oliv. The habits of this common species are well known to collectors of Coleoptera. Harris says, Ins. Inj. to Veg., p. 116: " These grubs (larvæ of *Rhagium*) live between the bark and the wood (of pines) often in great numbers together, and when they are about to become pupæ, each one surrounds itself with an oval ring of woody fibres, within which it undergoes its

transformation. The beetle is mature before winter, but does not leave the tree until spring." I can personally vouch for the accuracy of the above, having often uncovered the beetle both in the fall and winter, as well as in the spring. It is ready to fly upon the advent of warm weather, and there were unquestionably other individuals about besides those observed on the church walls. This species, curious in other respects, furnishes also in its habits of hybernating a rather remarkable exception to the general rule among the Cerambycidæ. Most species of this family in this latitude pass the winter in the larval stage. During many successive winters' collecting I have met with no other species in its mature form. Several years since a living specimen of *Microclytus gazellula* Hald. was dug out of the bark of a living white oak, quite late in October, where it would doubtless have passed the winter months. Mr. E. P. Austin tells me, in a letter written at the time, of finding a specimen of *Graphisurus pusillus* Kirby, I think it proved to be, while sifting leaves in the winter of '73—'74. The only other instance which I now remember of the occurrence of a Cerambycide in winter is given by H. F. Fay, of Columbus, Ohio, in the Proc. Ent. Soc. of Phil., 1, p. 198, in an article on "Winter Collecting." He says: "The only Longicorn I have met with is a single specimen of *Cyrtophorus niger* Lec., or a var. of *Clytus albofasciatus* Grey."——"It was found"——"in the soft wood of a decaying elm."

F. PLANCHARD, Lowell, Mass.

DEAR SIR,—

In answer to Mr. Andrews' enquiry about *Rhagium lineatum*, in CAN. ENT., No. 4, I will say that I have found thousands under the bark of pine logs during the fall and at various times until the early summer months. The larva, pupa and imago are frequently found all at one time and under the bark of the same log, and I have at this time a bottle of specimens gathered in November from under the bark of a Jersey pine log not twenty miles from Mr. Andrews' residence.

A. S. FULLER, Ridgewood, Bergen Co., N. J.

ON THE USE OF CYANIDE OF POTASSIUM.

We have been favored with a letter from Mr. J. E. Chase, of Holyoke, Mass., in reference to the use of bottles containing Cyanide of Potassium for catching and killing moths. Mr. C. encloses a specimen label such as

he attaches to bottles and distributes among those of his friends who are disposed to help him in making captures. We append this for the benefit of our readers:

POISON.

DIRECTIONS HOW TO CATCH MOTHS, ETC.—The contents of the bottles are prepared by dissolving Cyanide of Potassium in water, and pouring into the bottle to the depth of half an inch; then drop in Plaster Paris until it thickens, and let it stand until hardened, keeping it CORKED. To catch moths with it, the best way is to take sugar from a molasses hogshead and mix with water, making it thick; spread this mixture on old posts, or trunks of trees, fences, &c., for two or three days. When the moths begin to scent the sugar, provide yourself with a small lantern giving light only on one side; visit each post and tree, and you will find moths by letting the light shine on the sweetened places. Then hold the bottle under one of them, and it will dart or fall into it; cork immediately or it will fly out. Then put the bottle in your pocket, and use another bottle to catch the next one, and by that time the first bottle will be ready for use again. You can thus visit each post, and when you reach the last one it is better to put the moths into a box, so that the new ones will not spoil them by flying among them. Some persons dip old rags into the syrup and hang them up to attract the moths.

DEAR SIR,—

From a friend in the neighborhood of Salt Lake, Utah Territory, I received a small lot of Lepidoptera, and as collectors would no doubt be pleased to learn something of the fauna of that locality, I will give you a list of the insects received, viz:

Papilio daunas Boisd,
Pieris protodice Boisd. & Lec.,
Anthocaris ausonides Boisd.,
Colias eurytheme Boisd.,
Vanessa antiopa Linn.,
Pyrameis caryae Hübn.,
Lycaena anna,
Chrysophanus helloides Boisd.
Gnophaela vermiculata,
Deilephila lineata,
Platysamia gloverii Strecker,
Arctia americana,
Catocala faustina? Strecker,
Erebus odora,

Of Platysamia gloverii I received two examples, both males, and as there were none of P. cecropia among the lot, I would take it to be a proof that gloverii is not a form of that species. Besides the differences

between the two species are too marked to leave any doubt of their being distinct. Mr. Hermann Strecker informs me that he has never heard of P. cecropia being taken west of the Mississippi River. The example of Anthocharis ausonides differs somewhat from my specimen of that species from California, and resembles more the European Anthocharis belia.

EDW. L. GRAEF, Brooklyn, N. Y.

DEAR SIR,—

In reply to the synonyms selected by Mr. Morrison (on page 79 of this volume), from my frequent papers during the last thirteen years, I wish to state that *Orthosia ferrugineoides* Grote ex. Guen. is a different species from *Orthosia ralla* Grote ex. G. & R.; the latter differs by the pellucid yellowish hind wings, not clouded with fuscous, and the black dots of the subterminal line, among other characters. *Plusia ou* is twice the size of *P. fratella*, and I have seen no intermediate specimens. It is not right to express oneself in such a manner, that my synonyms in the Noctuidae, occurring from time to time during the description of over four hundred new species (in the face of the difficulties imposed upon students by the works of Gueneé and Walker) over a long period of time, appear to be charged as committed within six months. Of the six synonyms I am charged with, one is an error of Mr. Morrison's, and only two were published in 1874; the remaining three species were published and *figured* by me in 1863, 1864 and 1870 respectively. I also have shown *Tricopis* and *Euleucyptera* to be distinct, and I take issue with Mr. Morrison as to the validity of *Bolina nigrescens* as distinct from *fasciolaris*, and on the authority of my catalogue names.

Mr. Morrison remarks (p. 79) that "in ignoring (?) Mr. Grote's genera *Eucoptocnemis*, *Exyra* and others (?) I simply follow the example of Dr. Speyer," etc. Now, the fact is, that on the only occasion which Dr. Speyer has yet had to refer to one of these genera of mine, it is *adopted*, not *ignored* (vide *Leucobrephos* Speyer, Stett. Ent. Zeit., 1875, 175). There are, however, only *three* such names in my whole List, viz., *Conservula*, *Exyra* and *Leucobrephos*. The diagnosis of *Tricholita* is given by Mr. Morrison under the term "*Perigrapha*," which applies to a different form; *Eucoptocnemis* is distinctly and properly founded on structural characters given by Gueneé to the single species: *fimbriaris*. The other generic names of mine without diagnosis in the "List" replace, for one sufficient reason or another, a name previously used.

I do not consider it an adequate reply to my criticisms of Mr. Morrison's publications, or to my complaints as to some misrepresentaions of my writings by Mr. Morrison, that certain synonyms of mine (corrected previously by myself) are brought up and offered as an answer to the one and as an apology for the other. My original remarks remain rather in full force, with the one exception where they refer to *Agrotis exsertistigma*, for which latter I am sorry and have excused myself on the ground of Mr. Morrison's retention of my material. In reply to Mr. Morrison's justification of *Eutricopis*, there appears no character but the unarmed tibiae to distinguish it from other Heliothid genera in Mr. Morrison's diagnosis, and it is there expressly stated to differ by the "unarmed tibiae." Now the term implies that it is "beautifully armed," and hence is inappropriate. With regard to Mr. Morrison's insinuations as to missing species in my "List," it is the great good fortune of this "List" that it is incomplete and thus awaits changes at Mr. Morrison's hands. My List must be judged, however, by its predecessors in the same field, and not by information acquired subsequent to its issuance. I wish to draw, once for all, attention to the fact, that the most of Mr. Morrison's corrections in the shape of criticisms are *ex post facto*. Mistakes corrected by myself, determinations made by me when in England and France, are taken as part of our common stock of knowledge by Mr. Morrison, and used on occasion against me. I reply also finally to Mr. Morrison's charge as to his redescription of *lilacina*, that the author of a description, and not the authority consulted on the subject, is the one accountable for publication, while I am sorry that in certain of the successful ventures of Mr. Morrison, where my responsibility is equal, I am neither mentioned nor my courtesy acknowledged.

A. R. GROTE.

[Having now given both of our correspondents a fair hearing, our limited space will oblige us to refrain from publishing anything further on this subject.—ED. C. E.]

DEAR SIR,—

I have recently united *Agrotis scandens* and *muraenula* in opposition to my previously expressed opinion (Trans. Am. Ent. Soc., 1873, 431), that they were distinct. Mr. Lintner now calls my attention to the fact and gives me good reasons for adhering to my previous opinion that the species are distinct. It appears that the specimens in the Buffalo Society's collection do in fact belong to one species, but I am wrong in referring both names to them.

A. R. GROTE.